

REMARKS/ARGUMENTS

Description of amendments

Claims 10-14 are now pending and under examination. Applicant has cancelled claims 1-9. No new matter has been added.

Claims 10-14 are supported by the application as originally filed (see, for example, claims 5-9)

Objection to the drawings

The drawings are objected to under 37 CFR 1.83(a) as not showing every feature of the claimed invention. Although the cancellation of claims 1, 5, and 9 renders the objection moot, Applicant wishes to point out that all claimed limitations are shown in the drawings. For example, claim 5 recites that "the relative position of the pistons is chosen such that the sealing ring in a starting position of the valve lies sealingly in the cylindrical section and, upon the application of control air to the second piston, enters the first chamber." In Figure 2, the relative position of the pistons is chosen in accordance with claim 5. Accordingly, this limitation is shown in the drawings.

Rejection under 35 U.S.C. §112, second paragraph

Claims 1-9 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. According to the Examiner, the claims are generally narrative, appear to be a literal translation of a foreign document, and replete with grammatical and idiomatic errors.

Although the cancellation of claims 1-9 renders the rejection moot, Applicant wishes to point out that claims 5-9 are not narrative and are not a literal translation of foreign claims.

Rejection under 35 U.S.C. §103(a)

Claims 1-9 were rejected under 35 U.S.C. §103(a) as being unpatentable over Shea (U.S. Patent 4,166,084) in view of Swank (U.S. Patent 2,543,590). Although the cancellation of claims 1-9 renders the rejection moot, Applicant wishes to point out that the rejection is improper.

First, in contrast to the contention by the Examiner, the Shea patent discloses a bubble maker, not a spray element. There is no disclosure in the Shea patent that this bubble maker has a spraying function.

Second, and more important, the Examiner identifies in the Shea patent the section which contains and seats the valve stopper (7) with the “cylindrical” section of claim 5. This is obviously incorrect, because the stopper section of Shea is not of cylindrical shape, but has a frustum shape, i.e. a truncated conical shape, which is necessary for functioning as a seat for the correspondingly frustum-shaped valve stopper (7).

This difference is critical for accomplishing an object to be solved by the present invention, namely to avoid any dripping of the medium being sprayed, in particular when stopping a spraying operation. In the spray element of claim 5, when stopping a spraying operation by turning off the control air, the flow of medium through the cylindrical section immediately stops when (due to the piston movement in the direction of its starting position) the sealing ring (25) enters the cylindrical section (26). Now, according to the present invention, due to having the second end portion of the piston with the sealing ring guided in the cylindrical section, the piston remains movable towards its starting position even after the sealing ring has arrived at the cylindrical section and thus the transport of medium through the cylindrical section has stopped. By this further movement of the piston (in Figure 2 to the right) the volume of the first section of the second cylindrical chamber increases. This results in an underpressure

which causes a backflow of any medium which remained in the spray nozzle (12) and the connecting bore, so that any dripping of the medium out of the spray nozzle is prevented.

No comparable effect is reached by the bubble maker of Shea. To stop the flow of medium, the piston (6) is moved until the conical stopper (7) abuts its conical seat. Only then the flow of medium is stopped. However, no more movement of the piston (6) is possible after the piston has reached its medium flow stopping position, and thus no further underpressure can be generated to cause a backflow of medium from the nozzle, i.e. the volume in the liquid pathways (4) is not increased, but remains constant after the piston has reached a position in which it stops the supply of medium.

This critical difference also exists for the alleged combination by which the Examiner considered it to be obvious to provide the valve stopper (7) of Shea (which has no sealing ring) with a sealing ring as disclosed by Swank. In other words, even if one would follow the Examiner that such combination could be easily made by one skilled in the art, this would still not realize a spray element having all the features of claim 5.

For these reasons, the subject matter of claim 5 is patentably distinct from the cited prior art, and thus claim 5 and method claim 9 as well as the dependent claims should be allowable.

For the same reasons, new claims 10-14 are patentable over the cited references.

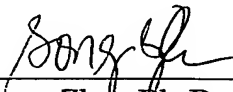
In light of the foregoing remarks, this application is considered to be in condition for allowance, and early passage of this case to issue is respectfully requested. If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

Application No. 10/825,371
Reply dated January 14, 2005
Response to Office Action dated October 19, 2004

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #028972.53936US).

Respectfully submitted,

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